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his reading ten specific matters of usage stylistically fundamental (see p. viii) and will list examples of them. It will be impossible for him to indulge in any of the conventional textbook generalities, meaningless to him and trite to the instructor. Some teachers who love the lavender nebulosities of criticism will think the method rigid and lacking in play for individuality. That is unfortunate. The method is definite and practical; it develops the student's powers of observation; it frees him from the usual abject dependence on the professional instructor. Some teachers who love the lavender nebulosities of criticism will think the method rigid and lacking in play for individuality. That is unfortunate. The method is definite and practical; it develops the student's powers of observation; it frees him from the usual abject dependence on the professional critic; and it inspires in him a love of meaningful statement. No defect can counterbalance these virtues; and they are not merely virtues—they are crying needs in the present-day study of literature. Many of us, it may be said, who find it impracticable for various reasons to adopt the method entire, find these three volumes of great service in suggesting individual class exercises.

This volume—the last—completes Professor Clark's survey of the major English and American writers, and with the other two volumes (Scribner, 1905, 1907) forms a valuable manual of English style. It is a matter of sad regret that the death of Professor Clark made the completion of his work fall to another. Professor Odell, however, has proved himself an able continuator. Because of his long and pleasant association with Professor Clark at Northwestern University it has been possible for him to give us the book substantially as Professor Clark would have wished. In a volume of this size, with its compact presentation of multitudinous detail, there is some inevitable looseness of statement. We are all fallible. But the details are here; and the accuracy is up to the worthy standards of the preceding volumes. Professor Odell consequently deserves both thanks and congratulation.

Teachers who have not become familiar with the methods of these volumes have missed valuable training.

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The Psychology of Drawing, with Special Reference to Laboratory Teaching. By FRED CARLETON AYER, Professor of education, University of Oregon, 1916. Baltimore: Warwick & York, Inc. Pp. 186.

Students and teachers of science will welcome this contribution, which is the author's doctor's thesis. It "represents the results of a study of drawing as a device in laboratory teaching which has included a survey of the existing literature of the psychology of drawing." The book is arranged as follows: Part I, "The Scope of the Problem"; Part II, "Survey of the Literature of Drawing"; Part III, "Experiments and Conclusions."

In Part I the author points out that "laboratory work has three aims: the observation of material, the making of records, and the retention of learning. It furthers these aims by three devices: representative drawing, description, and analytical drawing. Our general problem is to determine the character of the various interrelations of the factors which enter into laboratory procedure." The specific problem, however, is "the psychological analysis of laboratory drawing."

Four chapters are devoted to a survey of the literature of drawing. In Part II we find such subjects as: "The Methods of Research and Bibliographical Survey" (chap. ii), "Studies in the Relation of Drawing to Intellectual Development" (chap. iii), "Studies in the Analysis of the Drawing Product" (chap. iv), "Studies in the Analysis of the Drawing Act" (chap. v). A bibliography of 110 titles is given at the end of the book.

"Four groups of subjects (about fifty in each group) were carefully tested with unfamiliar objects as to their abilities in drawing, description, and diagraming." These tests and the results obtained are recorded in Part III.

The author has arrived at a number of interesting conclusions, and many excellent suggestions are made for the improvement of science teaching. We wish to mention one set of conclusions. By definition, "representative drawing is 'representative' which reproduces as accurately as possible the exact appearance of an object. The product is a visual imitation of the original."

The effect of representative drawing upon the student's retention of scientific knowledge is stated by the author in the following words: "It is a waste of time for the interests of scientific thinking to require students to spend extended periods of time at representative drawing. In fact, it is worse than a waste of time, for it encourages bad habits of analytical study which are opposed to interests of scientific thinking and constructive research. It is no wonder that so few of our picture-laden notebooks give evidence of a scientific grasp or initiative. The excessive use of representative drawing is a serious pedagogical formalism which produces copyists instead of scientists and which creates distaste instead of enthusiasm for science."

"The results of the various special tests show that representative drawings do not afford a measure of the pupil's progress or an adequate record of the work which he has accomplished."

As opposed to the above conclusions the author finds that: (*a*) "Description [by words] is a desirable record of the work of the pupil. It covers a wide range of observation and lacks only in the matter of the extra time required for the preparation of accurate and comprehensive statements and for the teacher to make critical inspection." (*b*) An analytical drawing, as the term is here used, consists of a diagrammatic presentation of the parts of an object and their position and relation to one another. To produce such a drawing the pupil must analyze the object and then present it in its entirety, including parts that may be seen in one view and parts that may not be seen in that single view. It requires analysis and sustained mental effort to the end of the process of constructive presentation. "Analytical drawings are ideal records of work accomplished and should be used wherever adaptable to the laboratory exercise. They require but a minimum of time for execution, can be made without exceptional skill of hand, and may be readily inspected."

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How Children Learn to Draw. By WALTER SARGENT and ELIZABETH E. MILLER. Boston: Ginn & Co., 1916. Pp. iii+264. $1.00.

Books on methods of teaching are often merely compilations of detailed devices presented in the form of dogmatic directions. Books on psychology, on the other hand, even educational psychology, have been content with laying down general principles concerning mental life. Too often these general principles are so remote from any application to the problems of the teacher that the authors of the books containing them would be hard put to it to show that they have any bearing on practice. Even when the principles are themselves applicable, the student is commonly left to make his own application.

The significant fact about this book on drawing is that it represents the union between the presentation of theory and of the related practice. In this way theory illuminates practice by showing why certain methods are pursued. Furthermore, practice not only illustrates theory, but, still more important, forms the basis of theory. For this reason the book may be said to have a genuinely experimental basis. The experiment was not conducted in a technical manner, but it had the advantage of being carried on in a constructive spirit. Its aim was to discover the modes of meeting the developing phases of the child's ability to draw by the appropriate form of training, as well as to determine what these developing phases are.

The conclusions which the authors have arrived at as to the child's drawing interests and ability at various ages accord in a general way with the results of certain previous technical investigations, as those of Barnes and Clark. For example, they agree that there is a transition point at about the ages of eight or nine, when the child comes to a keener recognition of the detailed appearance of objects, and hence perceives the inadequacy of his early crude drawings. But the former experiments offered no solution of the problem which this situation presents. The authors of this experiment have shown that, while the younger child's drawings are what may be described as symbolic, in that they represent types rather than detailed individual characteristics, they are not, by any means, insusceptible to the influence of training. Among the forms of training which have proved successful are several which are, in some measure, reactions against the extreme forms of the modern revolt against the older formalism. Such are the use of tracing, and the mastery of a few type